

Global co-ordinated action is needed to ensure that the UK's food future is sustainable

*A combination of factors make current pressures on global food production intense. An new inquiry by the Environmental Audit Committee on sustainable food is therefore timely. The Head of Foresight, based in the UK Government Office for Science, **Sandy Thomas** outlines the particular challenges that the UK faces to ensure food security.*

Last week Professor Sir John Beddington, the Government Chief Scientific Adviser, Professor Charles Godfray the Chair of the project's lead expert group, and myself gave evidence to the [Environmental Audit Committee's Sustainable Food Inquiry](#).

The inquiry provides an opportunity to consider what actions and choices are available to create a sustainable food system in the UK and we were keen to present some of the key messages from the Foresight Report on [Global Food and Farming Futures](#) which considers the global food system. The report clearly states that the food system is currently consuming resources faster than they are being naturally replenished and renewed. It consumes 70 per cent of total global water withdrawals from rivers and aquifers, and directly contributes 10-12 per cent of GHG emissions.

We made a strong case to the Committee that there is an urgent case for action to redesign the global food system. We are in a unique moment in history as a multitude of factors converge to affect the demand, production and distribution of food over the next 20 to 40 years. At the same time the needs of a growing world population have to be satisfied while critical resources such as water, energy, and land become increasingly scarce. Any one of these pressures would present substantial challenges to food security and sustainability; together they constitute a major threat that requires a strategic reappraisal of how the world is fed.

The complexity of the challenges for global food security and sustainability, outlined in the Foresight report, requires global solutions, through a coordinated international approach. An international perspective in assessing the future challenges to the UK food system is critical, as no country can address the challenges that face national food security by self-sufficiency. Global food security and sustainability requires the UK to work with international organisations and other governments around the world, to help farmers everywhere to adopt methods of sustainable intensification.

The UK's food security involves a complex set of factors affecting availability, affordability and accessibility, and is linked with wider agendas including water, energy, land, and climate change. During our evidence session we identified the most important challenges and choices for the Committee to consider in the debate on how to balance the competing pressure and demands on the global food system around sustainability. We focused on four particular challenges identified in our report:

Balancing future demand and supply sustainably

We argue that the global food system has to be redesigned to bring sustainability centre stage. This can be delivered through producing more food using existing knowledge and innovation to increase production, moderating demand, managing waste, improving governance, and raising the political profile of food.

UK consumers can play a key role in influencing demand within the food system by managing waste and making informed decision about their food choices. Research commissioned by the Foresight project showed that in high-income countries, the greatest losses are incurred by the food services industry and consumers. Studies suggest that the majority of household food waste could be avoided; in the UK [a family could save around £680 a year](#) by managing its food better. Additionally informed consumers can effect change in the food system by choosing to purchase items that promote sustainability, equitability or other desirable goals.

A major debate of the global supply of food is that agriculture needs to produce more food and impact less on the environment to create a sustainable food system. Sustainable intensification of food production is a



critical tool for achieving this goal. The Committee are particularly interested in this concept and the impact it can have on the UK food system. Our report defines sustainable intensification as simultaneously raising yields, increasing efficiency of inputs and reducing the negative environmental effects of food production. It requires economic and social changes to recognise the multiple outputs required of land managers, farmers and other food producers, and a redirection of research to address a more complex set of goals than just increasing yield.

Ensuring adequate stability in food supplies and the impact of food price volatility on increasing hunger

While volatility has been lower over the past 20 years, price spikes in 2007/8 had a profound impact increasing hunger and the risks of political and social instability. Rising food prices have driven an estimated [44 million people into poverty](#) in developing countries since last June. There are clear actions that can be taken to manage volatility, include: creating reliable rules-based liberalised international trade, investigating modern commodity trading, caution on calls for a global system of grain reserves, appropriate insurance for poor farmers, and targeting food reserves and safety nets. As prices in early 2011 exceed the high of 2008 protection of the most vulnerable groups from the worst effects of food price volatility must be prioritised.

Managing the contribution of the food system to the mitigation of climate change

The ambitious targets for reducing emissions cannot be achieved without the food system playing an important part. A wide range of measures have the potential to reduce emissions. Significant reductions in GHG emissions could be achieved by incentivising and spreading current best practice, while new scientific, engineering and social science research offers the prospect of novel ways to reduce emissions. Policies to reduce GHG emissions in the food system should also consider how they affect the amount of food produced, the quantity of the inputs required, and other externalities of the food system, from effects on ecosystem services to animal welfare. Addressing climate change and achieving sustainability in the global food system need to be recognised as dual imperatives. There is a clear case for substantially integrating and improving considerations of agriculture and food production in negotiations on global emissions reductions.

Maintaining biodiversity and ecosystem services while feeding the world

Decisions taken now will affect the diversity of plant and animal species for future generations. Food supply will need to increase without the use of substantially more land and with diminishing impact on the environment: sustainable intensification is a necessity. The environmental consequences of different food production practices need to be better understood, their positive and negative economic effects internalised, and economic incentives developed to help sustain ecosystem services. The report argues that policies for food production and maintaining biodiversity and ecosystem services need to be developed and properly connected at both global and national levels.

Key conclusions

In the session Professor Charles Godfray, the Chair of the project's Lead Expert Group highlighted a stark warning in the Foresight report for both current and future decision-makers on the consequences of inaction. He emphasised that food production and the food system must assume a much higher priority in political agendas across the world. Across all international agencies, institutional mechanisms need to be developed to allow a more integrated approach to food supply and security, making links with climate change, gender, poverty, biodiversity, ecosystem services, energy and other policy areas; to bring food centre stage. To address the unprecedented challenges that lay ahead the food system needs to change more radically in the coming decades than ever before.

Not only should policy in all areas of food system consider volatility, sustainability, climate change and hunger but policy in energy, water, land use, the sea, ecosystem services and biodiversity should consider food. Foresight has taken this multidisciplinary approach during this project to consider the challenges and choices for creating a sustainable food system. I explained to the Committee that the Project involved around 400 leading experts and stakeholders from about 35 low-, middle and high-income countries across the world as well as participants from a very wide range of disciplines: natural and social scientists and experts in risk management, economics and modelling. Drawing upon the latest scientific and other evidence from many organisations and researchers, we took a long-term, strategic outlook at likely challenges out to 2050. We also drew attention to the use of futures techniques to embrace the many uncertainties inherent in the future, and to identify choices that are resilient to a range of outcomes.

Professor Sir John Beddington concluded by saying that although the current and future challenges are enormous, there are in his view, real grounds for optimism. It is now possible to anticipate a time when global population numbers cease to rise; the natural and social sciences continue to provide new knowledge and understanding; and there is growing consensus that global poverty is unacceptable and has to be ended. However, he also pointed out that very difficult decisions lie ahead that will require bold actions by politicians,

business leaders, researchers and other key decision-makers, as well as engagement and support by individual citizens everywhere, to achieve the sustainable and fair food system the world so desperately needs.